Zheyuan (Charles) Xu

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Education

University of Washington
Master of Science in Computer Science and Systems *Sep 2020 - Dec 2021*

Georgia Institute of Technology
Bachelor of Science in Computer Science and Electrical Engineering *Aug 2015 – May 2020*

Experience

Research Assistant Jan 2020 – Aug 2020
GTSR Lab *Atlanta, GA*

- Participated in mechatronics design and firmware development in C++ for GT-MAB 2.0
- Improved communication link between blimp and ground station, reduced latency by more than 150 times
- Developed ground control software in both Matlab and C# for debugging purposes
- Worked on refurbishing and automating OSV (omni-directional surface vehicle)
- Integrated RTK (real-time kinematic) GPS, enabling centimeter-accuracy in localization and heading measurement

Patents

Flight Control System for Miniature Aerial Robots
A low-power, low-latency, lightweight headless flight control system suite for indoor robotics systems

- https://licensing.research.gatech.edu/technology/flight-control-system-miniature-aerial-robots

Highly Effective Motion Marker for Small Aerial Robots
A robust, lightweight, low-power active infrared localization marker

- https://licensing.research.gatech.edu/technology/highly-effective-motion-capture-marker-small-aerial-robots

Selected Projects

GAIA 2.0 | *A web app for monitoring natural disasters and monitoring rescue missions* Feb 2021 – Apr 2021

- Designed the frontend animation in Three.js WebGL, HTML and CSS
- Implemented the backend in Azure VM with RabbitMQ and BigQuery for real-time information updates

AdaEye | *A voice-controlled navigation and cognitive app for visually impaired* Feb 2021

- Designed the frontend in Swift, allowing **voice-only** login, registration and scan of surroundings
- Hooked up Arduino and camera gimbal, enabling voice control of gimbal by integrating RabbitMQ on Azure VM
- Built a chatbot on the frontend, enabling voice query and answer by integrating GPT-3 and AVFoundation

Neomap | *An augmented-reality app for share your new year resolution and relive your older memories* Dec 2020

- Integrated hand gesture detection with optimized **Reality Kit** code from WWDC 2020, allowing real-time keyboard-less reaction to user posts
- Integrated **Firebase** for storing user information, user posts, and user authentication

Technical Skills

Languages: Java, Python, C/C++, C#, SQL (Azure, CockroachDB and BigQuery), JavaScript, HTML/CSS, Dart, Swift, Matlab, CUDA C++
Frameworks: Flutter, React, Node.js, Three.js, Cannon.js, Flask, Unity, RabbitMQ, ROS, GCP, Azure, AWS
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, Eclipse
Libraries: Pytorch, Tensorflow, pandas, NumPy, Matplotlib
CAD: EAGLE, SOLIDWORKS, ALTIUM, Blender

Awards and Honor

Best Use of Google Cloud - MakeHarvard 2021
Best Use of Google Cloud and Radar.io Most Creative Award - MLH New Year New Hack 2021
First Prize - Campus 2030

Mentorship

Technical mentor for Cal Hacks *hello:world* hosted at UC Berkeley (live **Flutter** and **React** Debugging for participants)